PART THREE
ZONE DISCUSSION

CHAPTER 9
BUILDING DESIGN CRITERIA

The purpose of this chapter is to provide visual instructions regarding choices to be made concerning Building Design Criteria.

SECTION A
VISUAL DESIGN FACTORS

Characteristics of Form

Shape and Proportion

The primary characteristics of a form are its inherent shape and proportions. Proportion is most often considered to be the relationship of a building's height to width to length. The concept of consistent proportioning can have a dramatic effect on creating or continuing a coherent architectural character on Ft. Lewis. There are obviously a number of critical factors

that impact the dimensions of a building; the proposed functioning of the space, activities to be accommodated, structural limitations and the context of adjacent exterior spaces. All of these factors, as well as a great many more, pressure a building's form and proportion. An additional determinant present in successful building design is the aesthetic judgement of the "desirable" dimensional relationships between an individual building part, other parts and the entire structure. To this end, a number of theories of "desirable" proportion have been developed over thousands of years.

The intent of all theories of proportion is to create a sense of order among the elements of the visual environment. That is why a clear understanding of these principles is critical to the purpose of an installation design guide for Ft. Lewis. Proportioning systems establish a consistent set of visual relationships between the parts of a building, as well as between the parts and the whole. These relationships may not be immediately perceived by the casual observer; however, the visual order they create can be sensed and appreciated through a series of repetitive visual experiences.

One of the oldest and most prevalent theories evidenced at Ft. Lewis is the mathematical system developed by the Greeks known as the "Golden Section". This mathematical system was originally based on the human body and has had application to architecture from the Parthenon to the works of LeCorbusier (Fig F-9-A). A rectangle whose sides are proportioned according to the Golden Section is known as a Golden Rectangle and is based on the ratio of 1 to 1.618 (Fig F-9-B).

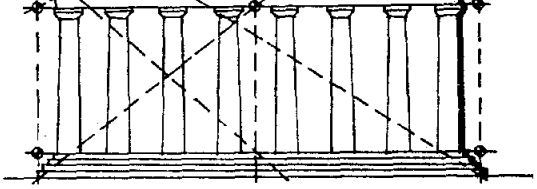


Fig F-9-A

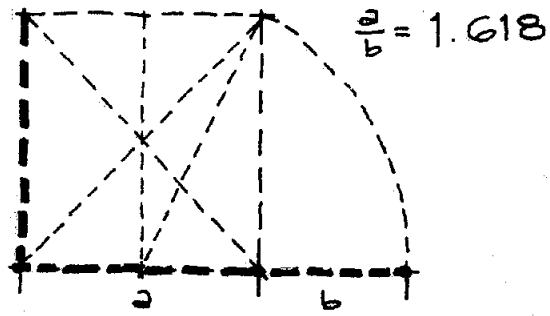


Fig F-9-B

The golden rectangle proportioning is most evident in the Garrison area of Ft. Lewis and a representative analysis is provided (Fig F-9-C).

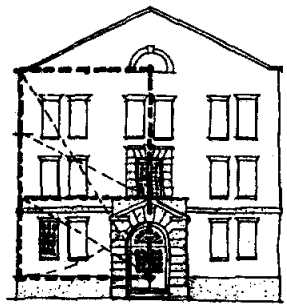


Fig F-9-C

Size, Massing and Scale

Massing, size and scale are three tightly interwoven design concepts. The mass of a building (or building part) is essentially its bulk; that is, the volume of space it encloses. The arrangement of enclosed spaces is the primary factor in determining a building's "massing"; ie, blocky, vertical, horizontal, etc. The height, length, width and depth of those masses are a building's (or other form's) size and determine its proportions. This size in relation to a form's surroundings (context) is referred to as scale.
The way a building is massed expresses many things about the building; however, these expressions, depending on the skill and expertise of the designer, may or may not be accurate. A very large, rectangular form, for example, would probably be identified as a warehouse or

repair shop. However, many other activities (commissaries, PX's, even barracks) might also be housed in very large, rectangular buildings, and fenestration and other architectural elements can not always succeed in communicating a building's function. Massing, therefore becomes critical in helping to identify building functions and in making buildings pleasant places to work, shop or live. Massing can also determine to a large extent how well a new structure fits into its visual context or how buildings in diverse locations, but serving similar functions, are identified as of the same type. In short, designers should manipulate building massing to relate compatibility with adjacent structures, to relate with other post buildings serving similar functions, to reduce a building's bulk so that it better relates to its human occupants and to define entries, various functions and so on.

In general, a designer has very little control over the actual size (overall dimensions) of a building since the volume enclosed by the building envelope is determined largely by the functions served by the building. What a designer can control to a much greater degree is the apparent size. By breaking down the building's mass into smaller parts and paying careful attention to the size of various exterior elements of the building as they relate to human beings and each other, the good designer can reduce a building's visual impact (Fig F-9-D). By the same token, a building's visual impact can be increased by applying the same principal in reverse.

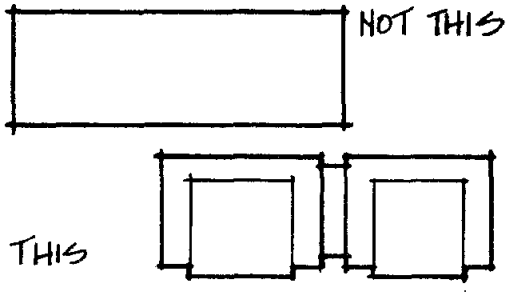


Fig F-9-D

As previously stated, the size of a form in relation to the size of surrounding forms is the concept of scale. Scale is an extremely important, but too often neglected, design concept because, more than most other form givers, scale is sensed by human beings.

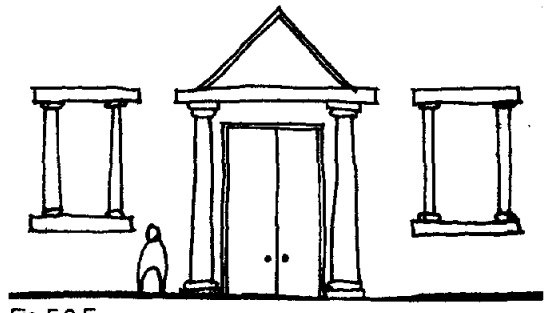


Fig F-9-E

Massing and fenestration (window and door openings and related details) are the primary determinants of a buildings scale: massing because it determines a building's bulk, and fenestration because it enables people to gauge the building's size in relationship to the human body.

Oversized fenestration on a large mass conveys monumental scale while smaller, more finely detailed fenestration on a small mass creates a more human scale (Fig's F-9-E and F-9-F).

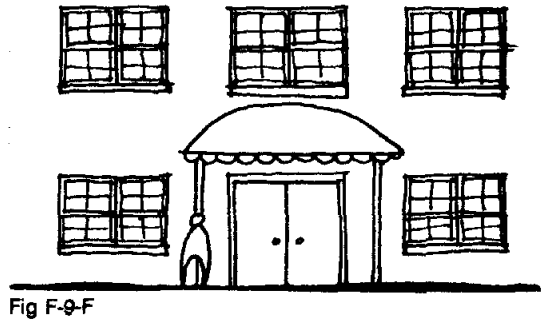


Fig F-9-F

Like massing, scale (or lack of it) can be used to help identify building function, to relate a building to others in a group and to increase or decrease the apparent size of a building.

Surface Articulation

Surface articulation can be defined as the manipulation of fenestration (doors, windows and their associated details), materials and other building elements (even color) to create patterns and give depth to architectural surfaces. This concept is closely related to scale and, in fact, is a prime determinant of scale. Blank, smooth walls, for example do not create a sense of scale while building surfaces which are enriched with detailed fenestration, textured or patterned materials and other forms of relief convey scale in a strong way (Fig F-9-G).

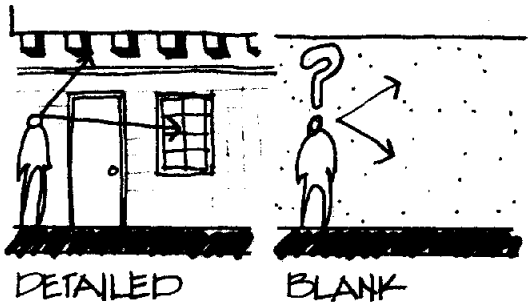


Fig F-9-G

Surfaces can be articulated in many different ways and many things can be expressed through that articulation. A buildings's structural bay size or a change in function or occupancy of the interior space are just two examples. Over-articulation, which results in a cluttered, cosmetic appearance should be avoided as diligently as blank facades and the resulting monotony and lack of scale.

Texture

Texture refers to the surface characteristics of a form and can be considered at both small and large scales. A brick wall, for example, has the small scale texture of an individual brick and the large scale texture of many bricks and mortar joints as part of a large surface. Humans perceive both tactile and light reflecting qualities of texture, and designers must respond to both (Fig F-9-H). Handrails, seating surfaces and flooring are just three examples of surfaces where the tactile qualities of the surface are critical. In buildings, though, the light reflective qualities of a surface are the primary determinants of its texture because humans generally see more of a building than they touch.

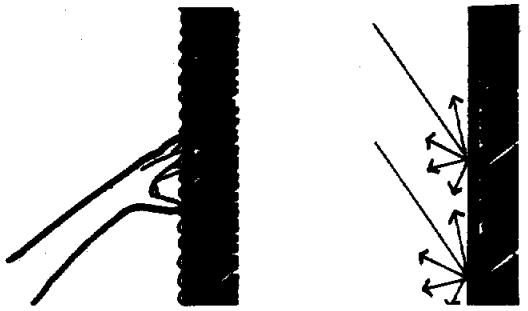


Fig F-9-H

The manipulation of textures is a valuable tool for the designer because it can communicate many things. Changes in texture can emphasize entries and other building elements, reduce the apparent mass of a building and distinguish one building in a complex from others. In general, rough textures are appropriate for residential and other "people", buildings and smooth textures for aircraft hangers, shops and other "machine" buildings. It should be remembered, however, that a change from smooth to rough textures on an industrial building can emphasize an entry, office or other area with a higher concentration of people (Fig F-9-I).

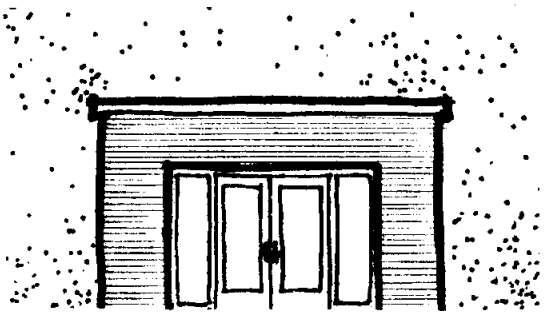


Fig F-9-I

Rhythm

Rhythm refers to the ways various building elements are grouped or placed on a facade.

These elements (windows, pilasters, even voids or masses) can be repeated in a regular, even manner resulting in a very formal and, if the designer is not careful, monotonous rhythm (Fig F-9-J).

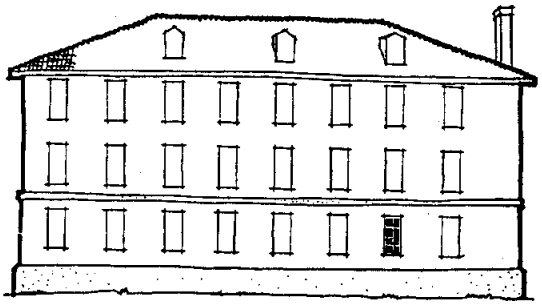


Fig F-9-J

Their placement can also assume what is known as a syncopated rhythm, one in which one repeating element is given more emphasis than the others (Fig F-9-K). A syncopated rhythm can be a successful way of creating variety in the facade of a large building while maintaining its architectural unity.

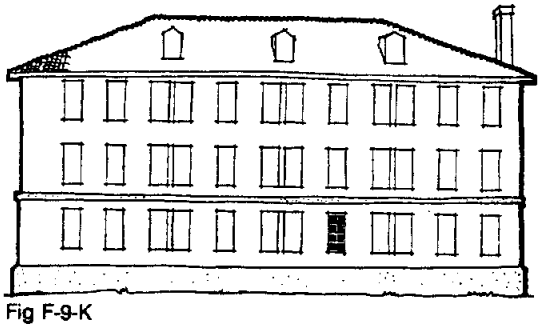


Fig F-9-K

Other fenestration patterns may have no discernable rhythm at all, resulting in an extremely informal appearance. This is generally not appropriate for the architecture of an installation like Ft. Lewis where military order is to be expressed in the buildings. The duplication of existing rhythms can be very valuable tools in relating a building to its context or giving a building in a remote location the same "feel" as another building of the same function.

Light & Shadow

The interplay of light and shadow on the various elements of a building cannot be ignored in this discussion of architectural design even though direct, bright sunlight is not as prevalent at Ft. Lewis as it is at other locations. In general, this interplay gives depth to a building and makes recessed areas such as entries, doors, windows, overhangs and setbacks more easily readable.

The fact that light and the resulting shadows are constantly changing emphasizes the importance of using light as a design element. Because direct sunlight is not prevalent at Ft. Lewis, and consequently shadows are not dark and crisp in relation to other localities, special consideration must be given to supplementing the light's effect.

This can be done in either of two ways:

- One method is to enlarge detailing elements and deepen recesses so that shadows, while still relatively light, will be "bigger". These larger shadows combined with more prominent elements will accomplish the goal of articulating the surface, but care must be taken to prevent the elements from becoming overscaled and out of proportion.

- Another appropriate method is to darken colors and deepen textures in areas commonly in shadow. This will give the desired result without adversely affecting the scale of the building and its parts (Fig F-9-L).

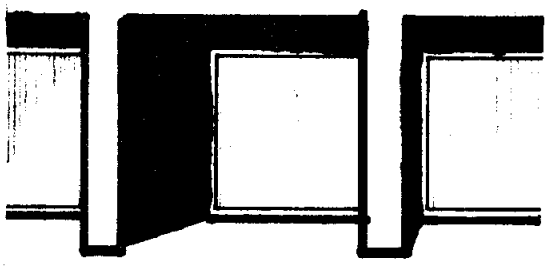


Fig F-9-L

Color

In the future, decisions must be made about the use of color (or lack of it) in all but the Old Garrison Area, for it is here that the most pleasing colors for building materials can be seen.

Warm orangy-red tones found in the brick and roof tiles add much warmth to the built environment (Fig F-9-M). These warm orangy-red tones complement the grey-green landscape. Sharply contrasting white painted trim provides counterpoint to the warm brick tones.
The predominant color of the natural topography of Ft. Lewis is the dark green of the forested hillsides. It varies from an occasional bright, deciduous green to a black-green caused by the masses of evergreens.

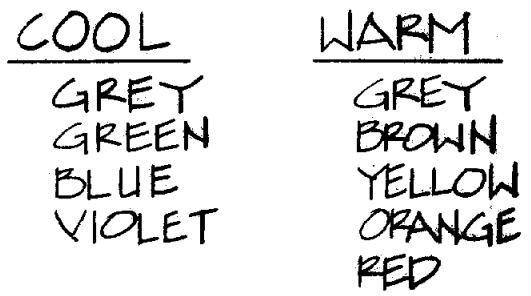


Fig F-9-M

Therefore, the natural background color palette of Fort Lewis is as follows:

- The sky color usually ranges from pale blue to various shades of cool grey.
- Irrigated grass provides a bright kelly green in summer; it changes from a bright green to a dull yellow-green as the summer progresses.
- Non-irrigated natural grasses turn to shades of buff and light brown during the summer.
- Charcoal grey, the color of much of the paved area around the buildings, is also a strong influence.
- Fall is the most colorful time of the year when many leaves change to gold.

The colors chosen for building materials must:

- Relate well to each other.
- Relate well to the natural environment.

The natural color of building materials should be used whenever possible. Natural materials reflect a subtle gradation of color and texture that is impossible to achieve with paint. When making an effort to match existing colors, special attention must be paid to the exact materials used.

If color is added to the materials, such as a painted surface, a color scheme accentuating one color should be used.

Choose contrasting colors to provide accent and variety, remembering that bold colors tend to advance and pale colors tend to recede.

New building designs, remodelings and renovations must be studied for their color composition. Competent designers must create human built environments which are comfortable, interesting work and living spaces. An individual's response to color is impulsive and emotional, and generally people are far more affected by the color of an object than its form. More and better color in the built environment is needed at the Post.

When discussing color, reference should be made to the following:

- Color wheel
- Hue
- Value
- Chroma

A color wheel is a circular arrangement of hues (names for color) as they occur side by side with the three primary colors at opposite locations; it is useful in developing a color scheme in which hues relate well to each other (Fig F-9-N).

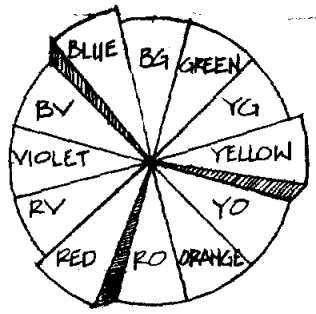


Fig F-9-N

For example, the reason the Garrison Area color scheme is so pleasing is that the roof/brick color and the foliage color are diametrically opposite each other on the color wheel, and, when placed next to each other, each appears its most intense.

At first glance this would indicate using warm, reddish tones as predominate wall colors. It must be noted, however, that the success of this color scheme in the Garrison Area depends largely on the fact that the colors are the natural colors of the materials used. Applied colors rarely, if ever, can achieve the same effect. In other words, warm colors, especially reds and oranges, should result only as a function of the materials selected; wall surfaces should never be painted to resemble brick or other such materials.

Value, the lightness or darkness of a color, should also be considered (Fig F-9-O). Generally, medium to strong values are preferred and value contrasts are desirable.

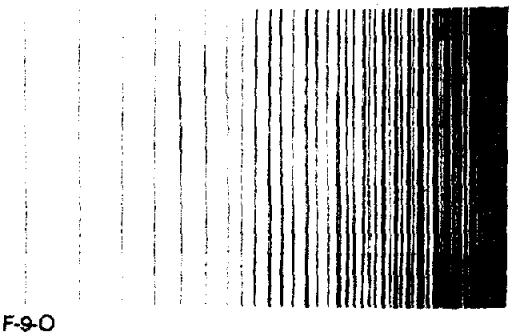


Fig F-9-O

Since the rainy, overcast weather casts a grayish tone over the whole region, there is a need to have colors appear clean and bright. Earth tones containing yellow, such as yellow-greens and yellow-browns, have a tendency to be unnatractive in appearance.

Use dark trim on a light/medium building; use light trim on a building with a dark walls.

The color selections listed below are intended to establish a uniformity for the entire Installation. Federal Standard Colors have been used as the source to identify these colors and neutral tones.

Preferable choices

- **Blue**
- Trim; Doors; Fascias:
  - # 15080 - (Dark)
  - # 15090 - (Dark)
  - # 25102 - (Dark)
  - # 25109 - (Dark)
  - # 35109 - (Dark)

- **Green**
- Trim; Doors; Fascias:
  - #14109 - (Dark)
  - #34058 - (Dark)
  - #34108 - (Dark)

- **Red**
- Trim; Doors; Fascias:
  - #11136 - (Dark)
  - #21136 - (Dark)
  - #31302 - (Dark)

- **Brown**
- Trim; Doors; Fascias:
  - #20059 - (Dark) (This is a black-brown - not yellow-brown).

- **White**
- Trim:
  - #27875
  - For the purpose of creating a contrast with dark surfaces such as red brick, white is the best choice; therefore, use it for painting door and window trim.

- Surfaces:
  - » #27875
  - » White is acceptable for individual walls to achieve a contrast in remodeling or new construction. White is also appropriate for walls of World War II wood buildings.

- **Parchment**
- Warm:
  - » #26586 - (Medium) (Concrete masonry units)
  - » #27722 - (Light) (Concrete masonry units)

- **Grey**
- Warm:
  - » #36099 - (Dark) (Roof; Fascia; Trim)
  - » #36373 - (Medium) (Metal Siding)
  - » #35630 - (Light) (Trim; Metal Siding)

- Cool:
  - » #36118 - (Dark) (Roof; Fascia; Trim)
  - » #36375 - (Medium) (Metal Siding)
  - » #37875 - (Light) (Trim; Metal Siding)

When using neutral colors (Parchment or Grey), select either warm or cool tones for an individual building or complex; do not intermix color palettes.

Design Principles

General

Care must be taken to constantly search for creative solutions and good design efforts must be put forth by the A/E contractors. In order to have an installation of noteworthy appearance, the buildings in all Zones must be treated with equal detailed design consideration (Fig F-9-P).

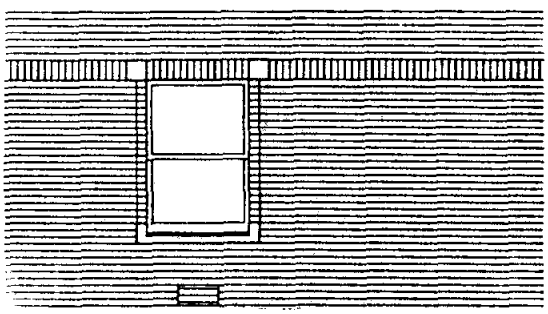


Fig F-9-P

The best examples of the Georgian Colonial Revival Style demonstrate that the same quality wall and roof materials were used for Maintenance Buildings as were used for Administration Buildings and Troop Housing (Fig F-9-Q).

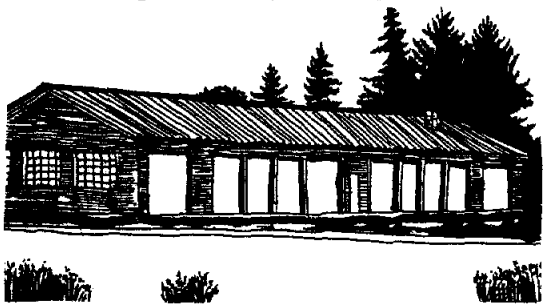


Fig F-9-Q

Community Buildings, such as the Main Post Chapel, also employed compatible materials (Fig F-9-R). Design continuity and visual interest was accomplished through the use of detailing and a visually discernible hierarchy. This practice should be continued today.

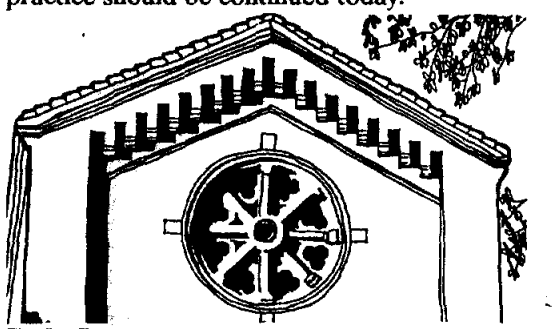


Fig F-9-R

Basics

The basic principles which explain how the elements of design are integrated to create a building design are:

- Unity
- Repetition
- Rhythm

- Variety
- Emphasis
- Balance
- Harmony

In order to have a common understanding of these terms, the following definitions are offered:

- Unity is the sense of wholeness in a design; every building should appear complete, either alone or as part of a complex.

- Repetition is the repeated use of design elements such as lines, spaces and textures which tie the design of the building together aesthetically and helps achieve unity.

- Light, shadow and color are used to achieve variety and relieve visual monotony.

- Emphasis is created by using a particular design feature to call attention to any given area of a building.

- Balance is the achievement of equilibrium in a design. Building elements are formally balanced if they are symmetrical. Building elements are informally balanced if there is a variety in the space relationship which allows a harmonious distribution of space, light and shade, form, line and color.

Expressions of Hierarchy

Buildings at Fort Lewis should reinforce the discipline and hierarchy of the Army by supporting those concepts with designs which follow the Military Park Theme. Since the most important buildings are not always the largest, factors other than size must draw attention to important buildings.

Developing a consistent building design hierarchy will assist in expressing each building's role in the overall Ft. Lewis complex. This Hierarchical ranking which communicates the importance of a building is expressed by a combination of factors such as:

- Size

- Massing

- Character

- Symmetry

- Formality

- Level of Detail

The most formal approach should be reserved for headquarters and administrative buildings located in the Old Garrison Area. This will consist of a combination of symmetrically organized, well balanced facades with a powerful sense of entry created by using carefully detailed, high quality materials (Fig F-9-S).

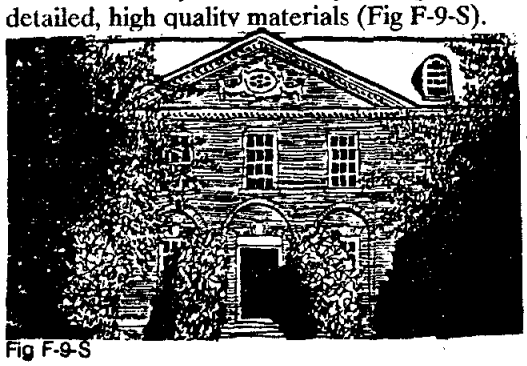


Fig F-9-S

Hierarchical Details

Attention should be paid to the following refinements:

- Blending new construction into this area of Georgian Colonial Revival style buildings

- Modifying geometric shapes and decorative elements to reflect the character of adjacent buildings.

- Choosing materials such as brick and tile which will reflect a solid permanent character.

- Selecting high quality construction methods and materials.

- Incorporating strongly expressed formal fenestration patterns.

By contrast, a more informal character is appropriate in areas such as the Community Center and Family Housing. Design factors which can be used to create a less formal character are:

- Simple, unpretentious facades

- Asymmetrical building massing

- Instead of a container approach to the massing, here it would be more appropriate for the function of the building to be expressed in the building elements.

- Grouping or irregularly placed fenestration according to the functional dictates of the building (Fig F-9-T).

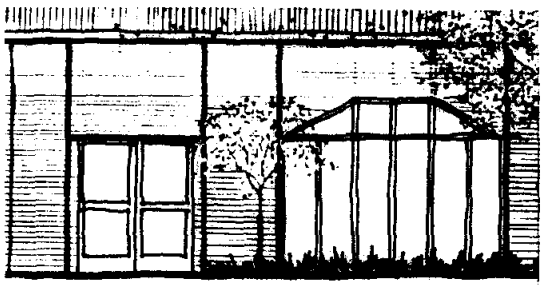


Fig F-9-T

- Selection of more than one material for walls

- Use of more contrasting colors and textures

Style

Architectural style, which can be defined as a distinctive, consistent and recognizable appearance, must be developed with a unified approach throughout the entire Installation. An accurate interpretation of the historic style, Georgian Colonial Revival, is most needed in the Old Garrison Area, so that new buildings, additions and remodelings will blend into the historic district and adhere to the principals of the Military Park Theme (Fig F-9-U).

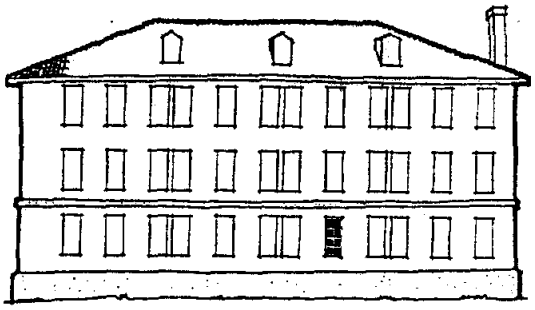


Fig F-9-U

As buildings are located further away from the historic district, more freedom of design interpretation is acceptable. For example, a more contemporary style utilizing certain Georgian Colonial characteristics would then be more appropriate for Zone 1 Headquarters and Administrative types of buildings. Some adaptation of Post Modernism, a decorative style characterized by a modern interpretation of classic forms and ornamentation, may be appropriate for buildings in Zones I, VI and VII (Fig F-9-V).

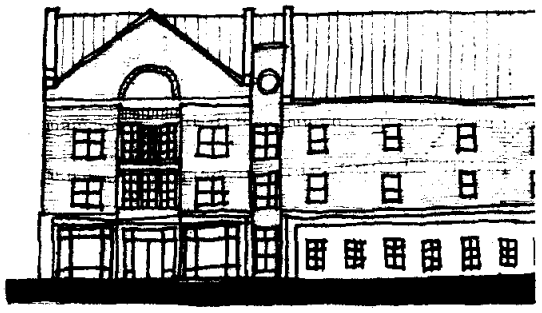


Fig F-9-V

The goal within each Zone is to create a harmonious blend of architecture, not one of monotony. It is appropriate to recognize that all building designs will be contemporary, i.e. of the time in which they are designed.

By way of contrast, certain areas should be strictly contemporary in design, such as the development of a "High-Tech" appearance in Zone II - Airfield. Zone V - Family Housing is another area in which contemporary forms of housing design are entirely appropriate (Fig F-9-W).

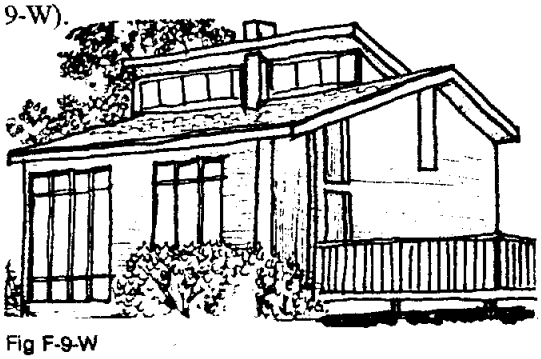


Fig F-9-W

Extreme styles are not recommended as they are faddish and do not adhere to the principals of the Military Park Theme. The Dispersed Industrial Style, seen in the Troop Housing Area, while recognizable, is to be discouraged, as this Military Functionalism Style has little visual appeal.

The Cobblestone Style, as demonstrated by the Main Gate and Gas Station, has a fine regional character which would be entirely appropriate for structures such as open air pavilions in Zone VIII - Open Space (Fig F-9-X).

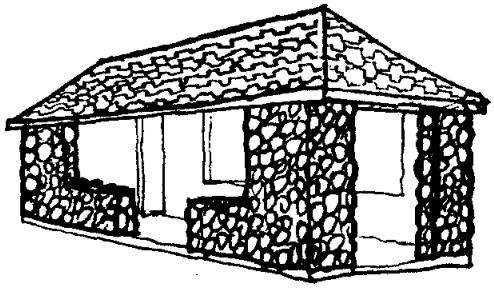


Fig F-9-X

Elevation Design

The basic architectural style of each building is more closely related to the design of elevations than any other factor. Much flexibility is possible in the design of elevations through the development of an ongoing design process which requires a continual studied relationship between the floor plan, the elevation and the resultant appearance. An attractive and functional elevation depends on factors of roof style, overhang, grade-line position and relationship of windows and doors to the building line.

A desirable elevation design results by development, by balancing the exterior appearance of the building with the interior functional elements required. As the vertical heights of doors, windows and the overall building are established, their appearance must be judged and alterations made to "massage" the visual effect into a unified whole. Nothing affects the silhouette of a building more than the roof line, so a three dimensional awareness is always required when a building is studied in two dimensions, as in an elevational drawing.

It should be remembered that although Louis Sullivan made the statement, "Form follows functions", no two designers will ever evolve the same form for the same function. Flexibility is mandatory. However, a good design will reflect the building's purpose, especially if design consistency is utilized throughout each zone.

Materials

As can be expected because of its large size and its development history, Fort Lewis has no cohesive, comprehensive architectural character. This is demonstrated not only by the different planning and architectural styles existing in various locations, but also by the unrelated exterior materials used on adjacent buildings.. Given this existing diversity of materials in use at Fort Lewis, the goal should be to use a limited, well defined palette of materials. This approach will allow individual neighborhoods to retain or develop their own identities without creating too much diversity.

Because of the temperate climate and accompanying lack of strong sunshine, thermal and reflective qualities of materials are not as critical as they would be in the desert Southwest, for example. Obviously, though, care must be taken to select materials which function well in a damp climate.

Furthermore, because Fort Lewis is adjacent to a major metropolitan area with numerous transportation systems, availability of exterior materials and labor to install them are not as limited as they are in more remote locations.

Exterior material selection, therefore, should be primarily based on aesthetic, contextual and economic criteria. To this end appropriate materials for each zone and building type have been selected and can be found in Section B of this chapter.

Context

Context, in terms of military architecture and planning, refers to the general character of an installation or part of an installation. This character is created by similarities in the various form generators within a defined area such as:

- Massing
- Proportion
- Materials
- Texture
- Colors

In the Garrison Area, for example, the Georgian Revival architecture with its quality materials, high level of detailing and formal symmetrical planning gives an impression of tradition, discipline and order. These are all important military values which, when expressed in the built environment, help uplift morale and generate pride (Fig F-9-Y).

Fig F-9-Y

A hierarchical order helps distinguish building functions from one another and reinforces that concept of military order.

The Division Area, on the other hand "feels" much less ordered and does not create the same sense of importance for the buildings (Fig F-9-Z). The buildings themselves are industrial in nature, not residential or administrative, and don't reinforce the military values listed above.

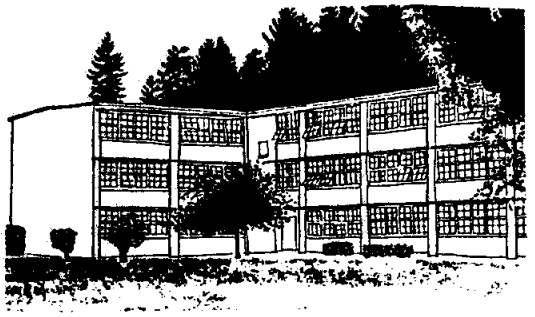


Fig F-9-Z

As one can readily understand, the context of the two areas of Ft. Lewis differ dramatically and contextual designs for each of the two areas would differ just as dramatically.

A contextual approach to design, however, should not result in a "cookie-cutter" duplication of nearby building forms. A talented designer could, by addressing the most pertinent design characteristics of the existing buildings, design an obviously contemporary building within the context of the Garrison Area. He or she could also design a building which adheres to the design principals of the Military Park Theme (axial relationships between buildings,

hierarchy, expressed entries, hierarchal use of detail, etc.) and yet still be in context with the rest of the Division Area (Fig F-9-a).

Fig F-9-a

The critical task is to isolate those characteristics which most give an area or building its identity and to integrate those characteristics into the new design.

Design Influence Within Historic District

As described in the Hightower Historic Properties Report on page 6-9, the period-revival design character should prevail for any existing or new buildings which are located in the historic district. These historic guidelines are to take precedence regardless of which Zone the building occupies. For clarity, check the historic district maps provided in the Hightower Report.

If modifications are made to these buildings, the design consideration should follow the Secretary of the Interior's standards for rehabilitation and guidelines for rehabilitating historic buildings. Maintain original historic fabric, appearance and stylistic integrity (Fig F-9-b).

Fig F-9-b

Building Components

General

The fundamental shape of a building should be consistent with the basic desired architectural style of the building. The word pitch is used to describe the slope of a roof. Pitch is expressed as a ratio of vertical rise to horizontal run, or in inches of rise per foot of run. The design of each exterior building (or complex) elevation is strongly affected by the following factors:

- Roof Pitch - high or low
- Roof Overhang - small or large
- Grade Line - high or low
- Foundation - exposed or below grade
- Window/Door Placement - random or related to building lines
- Vertical Elements - high and narrow, or low and wide
- Entry - at grade, above grade, below grade

The sum total of each of these design factors has considerable bearing on the consistency of the design.

The final appearance of each elevation depends upon the:

- Roof line (affects silhouette).
- Relationship among the various areas of the elevation such as surfaces, doors and windows.
- Balance of texture, light, color and shadow patterns.
- Each elevation should appear as one integral and functional composition.

Major Building Elements

Base

Base refers to that portion of a building below the ground floor but above the grade line. A base generally contrasts in color and material with the majority of the building elevation. It gives the building added prominence because of the extra height and the sense of procession and arrival associated with a raised entry (Fig F-9-c).

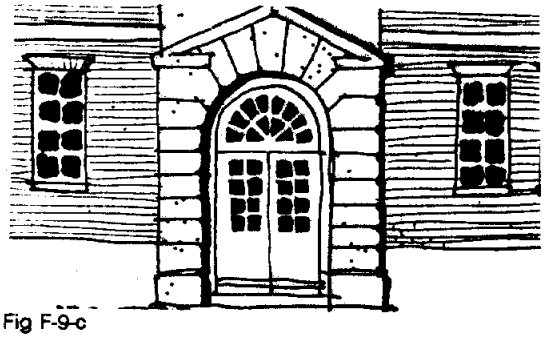


Fig F-9-c

Walls

Walls are part of the skin of the building and, in some cases, part of the structural system as well. As a viewer approaches a building the wall becomes more and more important in the viewer's perception of the building. Walls can appear heavy or light and can be transparent or opaque (Fig F-9-d).

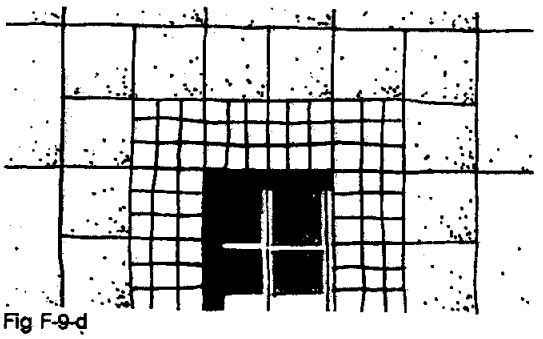


Fig F-9-d

Entrances

Entrance as used in this Guide refers to those exterior elements of a building which combine to shelter, draw attention to and otherwise emphasize the location at which one enters a building. Entries can be recessed into the building mass or protrude from the facade (Fig F-9-e).

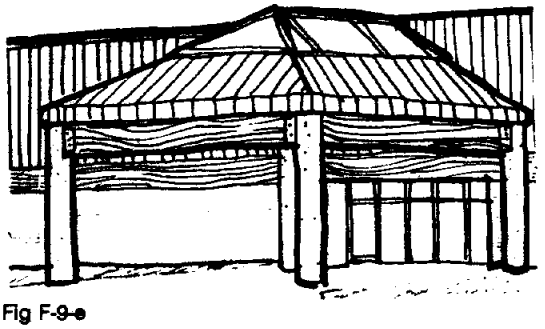


Fig F-9-e

Fenestration

Fenestration is generally defined as the door and window openings and related facade details of a building. Fenestration is a major generator of scale and plays a key role in contextual design (Fig F-9-f).

Doors are a point of contact which all users have with a building and require thoughtful design and selection. Windows serve three primary functions: daylight in, views out and views in. Their design should reflect those functions while maintaining architectural cohesiveness with neighboring buildings.

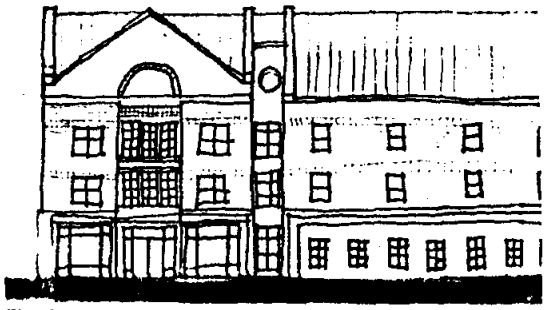


Fig F-9-f

Roof

A building's roofline is its prime form generator, especially from a distance. (See General, page 9-9). Roofs take many forms (Fig F-9-g).

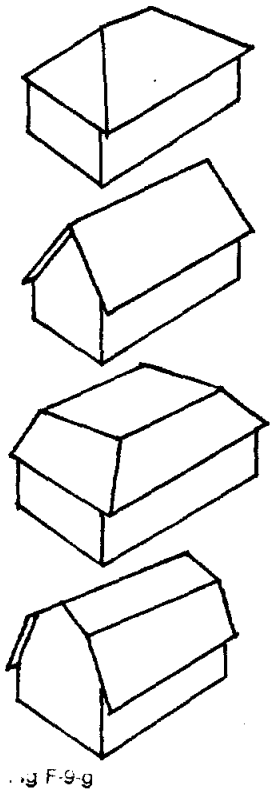


Fig F-9-g

At Ft. Lewis the most common roof forms are:

- Flat (usually not perceivable from the ground)
- Hip (slopes to all sides)
- Gable (slopes to two sides).

New building roofs should generally be composed of these roof types. Mansard and Dutch should not be used although shed roofs (sloping in one direction) are acceptable in some Zones.

Other elements which are part of a building's "roof" include:

- Cornices, (exterior trim of a structure at the meeting of the roof and wall), which may be used to emphasize a flat roof and separate it from the wall plane.
- Eaves and soffits (horizontal surfaces under overhangs), which shelter walls from sun and rain.
- Clerestories (bands of glazing between two roof planes which admit light to the center of a building) and skylights (glazed roof openings which admit daylight into the space below).
- Dormers (vertical windows which project from a sloping roof) should always be functional light sources or room windows, not decorative "dummies".

Secondary Building Elements

Covered Walkways

In Ft. Lewis' generally damp climate, covered walkways could provide welcome protection from the weather, however, care must be used in their design. Walkways should unify buildings in a group through the use of common materials and forms. Walkways should not look like long, thin aluminum carports.

Porte-Cocheres

A porte-cochere is a logical entry element on any building where large numbers of people load or unload from vehicles at specific times,

i.e. schools, clubs, chapel, etc. As with walkways, however, consideration must be given to the aesthetic qualities of the structure to avoid a flimsy, "attached" appearance. A porte-cochere should be roofed with the same materials as its adjacent building; wall or column materials should likewise match or compliment those of the main structure.

Plazas and Courtyards

In any temperate climate, outdoor living spaces must be considered as part of almost any building's overall composition. These spaces should be designed as outdoor extensions of rooms in adjacent buildings. Landscaping should be incorporated into courtyard designs, and paving materials or patterns should set courtyards and plazas apart from general circulation spaces (Fig F-9-h).

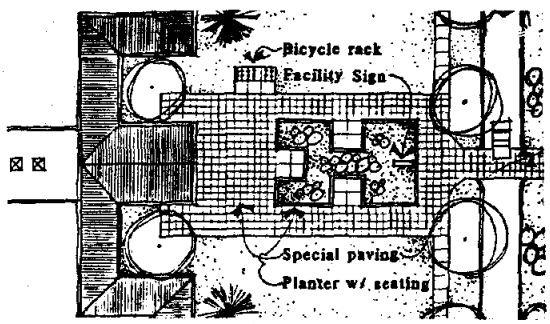


Fig F-9-h

Building Details

A building's detailing, its joints, juxtaposition of materials, hardware and so on, cannot be left to chance anymore than any other part of a building's design Fig F-9-i). Detailing should be consistent with the character of a building and should help tie all the elements of a building into one cohesive package. A consistent manner of detailing may also be used to unite similar buildings in diverse locations.

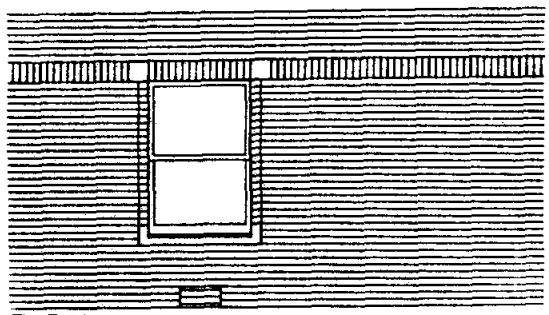


Fig F-9-i

Miscellaneous Elements

Mechanical Equipment

Few things can ruin a building's appearance and a user's experience of it as quickly as the insensitive locating of mechanical equipment and other "necessary evils." Unless the equipment can be integrated into a building's overall design (and this is very difficult and rare), it must be hidden from view. It should be located away from major entries, parking areas, main streets and any other areas where it can be seen by large numbers of people.

Two approaches are usually applied separately or together to provide a screen. A physical, visual barrier, preferably designed as part of the architectural fabric of a building, can surround the equipment, or landscaping, usually evergreens, can be strategically located to block views. The same principals should be applied to loading docks and any other elements usually considered unsightly.Experience at Fort Lewis has shown that roof-mounted equipment has not been successful because it usually causes roof-leaking problems.

SECTION B
ZONAL APPLICATION

General

Section B has been developed to establish specific design guidelines in each Zone regarding the selection of exterior building materials. These choices were based on aesthetic, contextual and economic criteria.

Zonal Classification

In order to aid in understanding of Zones, a Zone Map has been provided at the beginning of this section (Fig F-9-j). It is important to remember that the Zones and Design Guidelines are based on functional zone classification, not geographical location on this map.

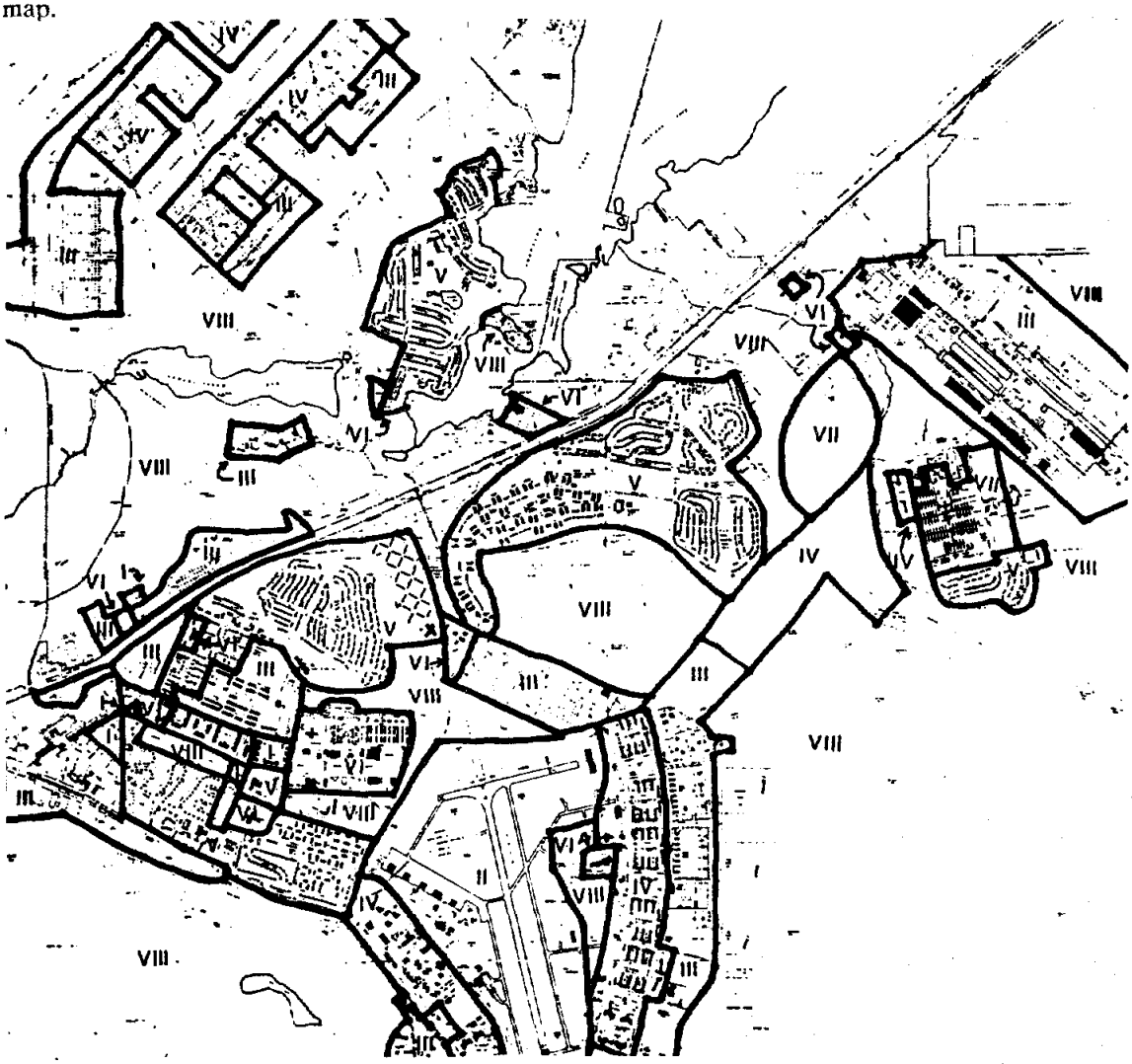


Fig F-9-j

Section B
Zonal Application

Zone I - Headquarters/Administration

Post Headquarters, I Corps Headquarters, 9th Infantry Division Headquarters, Main Installation Entrances, Installation Administrative Functions.

Visual Building Design Factors

Shape and Proportion

Close visual relationship to surrounding permanent buildings.
The Garrison Area massing should strongly influence the building massing in this zone. Massing tends to be relatively monolithic and unbroken which has obvious symbolic importance.
Use a single unbroken mass, an L - Shaped arrangement of building elements a U - Shaped arrangement of building elements.
Proportions of long facade: H = 1 1/2 to W = 4 to D = 1.
Proportions of long facade: place emphasis on golden section proportioning.

Size, Massing and Scale

Monumental: building forms, fenestration, entrances, floor to eave height.
Human: (also) fenestration (regular sized), stairs, railings, trim.
Height limit: 4 stories (I 45'). No building taller than I-Corp Headquarters in Garrison Area.
Expressed major entrances, stairs, porches
Consider continuity of existing expression lines at 1st story
Monumental scale building forms, fenestration, entrances, floor to eave height.
Human scale may also be applied to fenestration, stairs, railways and trim.
Height limit: to overhang on long facade = 40 feet.
Close visual relationship to surrounding permanent buildings.

Surface Articulation

Wall surfaces: 3 dimensional treatment, compatible with existing examples.

Rhythm

Regular sequence of repeated surface treatments.
Regular sequence of fenestration (Fig F-9-k).

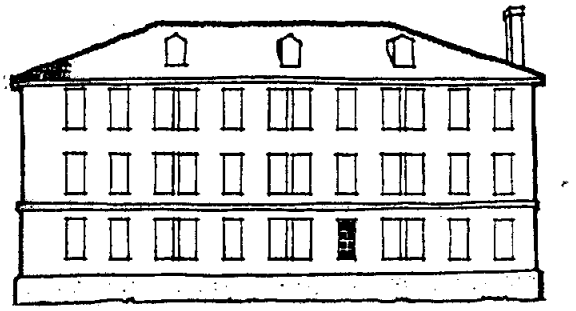


Fig F-9-k

Expressions of Hierarchy

The principles of visual hierarchy should be very carefully considered in this zone to emphasize the most important structures. A clear consensus with regard to the relative importance of the structure in question should be achieved prior to development of design.

Style

Close attention to traditional style choice is required in actual Garrison area. More adaptation or interpretation of classical forms is allowed in other physical areas.
Boldly designed attractive entrances Fig (F-9-l).

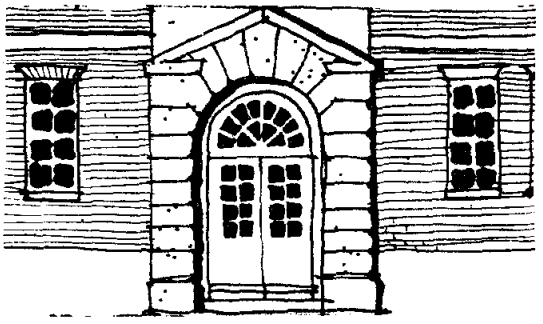


Fig F-9-l

Building Components

Major Building Elements

Entrances

Make distinction between major and minor and public and private entrances with detailing, location, etc.
Traditional Entrances. - wood door with glazing; possibly also sidelights.
Contemporary Entrances (not allowed in Garrison Area) - metal frames and doors; possibly also adjacent glazing

Walls

Brick - Red/orange (Color to match existing). (Also, pattern should relate to nearby existing)
Cobblestone/fieldstone - natural neutral tones (match existing) use at installation only.
Concrete Masonry Units w/split face texture - cool grey.

Fenestration

Windows and doors placement: individually.

Doors

Solid core, decorative panel wood door; similar to existing.
Contemporary Entrance doors (not allowed in Garrison Area).

Windows

Casement.
White vinyl clad wood.
Dark bronze anodized aluminum.

Double hung.
White vinyl clad wood divided lite (Fig. 9-m).

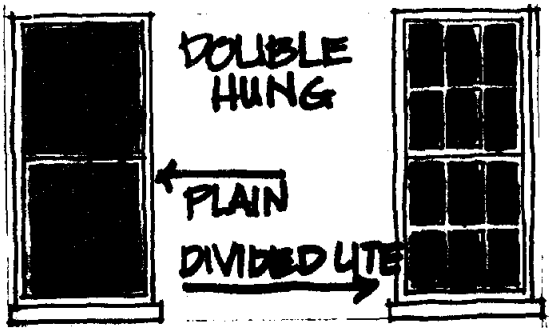


Fig F-9-m

Dark bronze anodized aluminum (not allowed in Garrison Area).

Fixed Glazing.
Glare - reducing, medium tints (not allowed).
Reflective glass not allowed.
Large expanses of glass should be multi-paned.

Roof

Pitch: 5/12; shape: hip with gables as accent (Fig F-9-n).

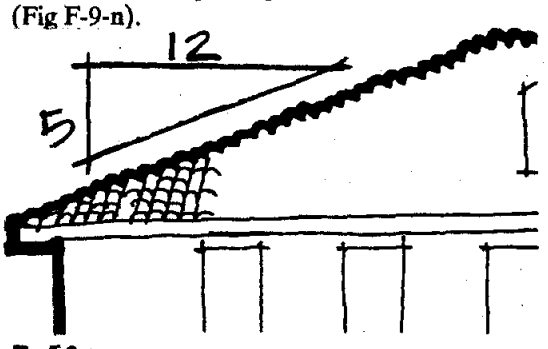


Fig F-9-n

Overhang - Min 2'0", Horizontal building lines accented at eave line.
Clay barrel tile - Red/orange (to match existing).
Concrete flat tile - Dark cool grey.

Metal standing seam - Dark cool grey.
Wood - Cool white.
Soffit: Flat.
Fascia: Vertical.
Cornices: Optional.
Dormers: Optional; relate to nearby existing.
Clerestories: Optional.
Skylights: Optional; provide curb model.

Miscellaneous Elements

Covered Walkways
Desirable.

Porte-Cocheres
Desirable (when a covered entrance for important personages is needed).

Plazas and Courtyards
Desirable

Other Features
Structural brick arches cut or cast stone.
Masonry columns, porches.

Gutters and Downspouts
Aged copper or dark anodized aluminum.

Mechanical Equipment
Ground mount at inconspicuous location and completely screen from view.

SECTION B
ZONAL APPLICATION

Zone II - Airfield

Support Facilities - Administrative Facilities, Training Facilities, Open Range

Visual Building Design Factors

Shape and Proportion

Smaller buildings should have strong silhouettes in order to "hold their own" among surrounding hangers, etc. (Flat roofs on large buildings and sloping roofs on small buildings).

Size, Massing and Scale

Large (as is typical of most airfield buildings) making reduction of scale with massing and detailing at "people" areas very important.
Smaller masses of entries, etc. as part of overall composition or larger (hanger) buildings and stepped masses from circulation side to airfield side (Fig F-9-o).

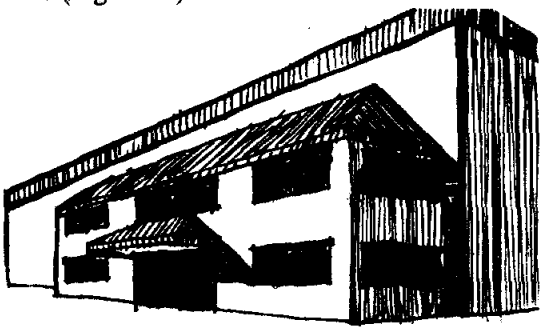


Fig F-9-o

Break large buildings into "units" whenever possible.

Rhythm

Avoid to much repetition on very large buildings to avoid monotony.
Break patterns into groups to reduce scale, i.e. IIIXIIIXIIIXIII, not IIIIIIIIIIIIII.

Expression of Hierarchy

Differentiate with materials, level of detailing, color, etc. between utilitarian (equipment oriented) and administration (people oriented) buildings.

Style

Contemporary, moderately "high tech" but drawing on symmetry, etc. to relate to Military Park Theme and rest of Post. Design of Flight Simulator Building is an excellent example of this design approach.

Building Components

Major Building Elements

Base

Placing small but important building on raised base will assist in making it stand out as building of significance.

Entrances

Use smaller, clearly expressed entry elements.

Walls

Concrete (Precast or poured in place); predominately smooth-surfaced with some detailing - light, warm tones.
Concrete masonry units: various textures (avoid fluted and very large areas of smooth) generally light, warm tones.
Metal siding: light grey (except large building visible against backdrop of evergreen trees,

then dark grey(#36099) or green (#34092) (as seen looking east from 41st Division Drive).

Decorative Patterns

Use cautiously near ground level to lower scale, define entries, break up monotonous masses, etc (Fig F-9-p).

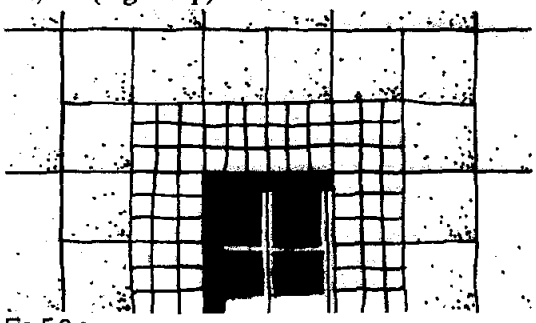


Fig F-9-p

Not too abstract.

Fenestration

Group fenestration elements together - avoid "lonely" windows punched into expansive wall surfaces.

Doors

Glazed aluminum or other metal with sidelights in main entries and other highly trafficked areas. Hollow metal typical most areas. Avoid door locations which appear random and have no definition, i.e. overhang, recessed door stoop, etc.

Windows

Casement, awning or other as situation dictates. Avoid natural anodized aluminum or painted metal. Tinted (but not reflective) glazing.

Window Sills and Openings

Use change in texture of material, direction of coursing, etc. to provide moderate contrast with surrounding wall material.

Fixed Glazing

Avoid too large expanse near ground level. Divide into lites.

Roof

Low slope roofs are appropriate.
Flat concrete tile: medium or dark warm grey.
Metal standing seam: medium or dark warm grey.

Skylights

Use whenever possible - glazing or insulated, light transmitting material.

Cornices

Use change of material, color, texture, etc. and/or projection to provide a "top" for flat-roofed buildings (Fig F-9-q).

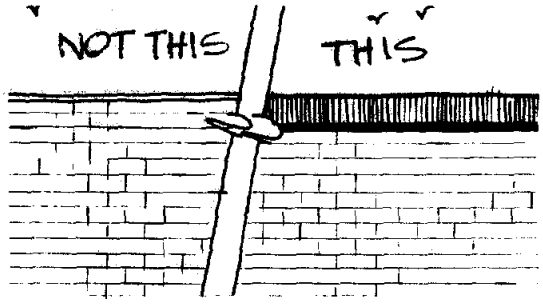


Fig F-9-q

Miscellaneous Elements

Covered Walkways

Provide walkways designed compatibly with adjacent building along very high-use pedestrian

paths, i.e. between two buildings serving same occupant (Fig F-9-r).

Fig F-9-r

Plazas and Courtyards

Provide "people spaces" for outdoor lunches, breaks and informal conferences, and plazas to contribute to a ceremonial sense of arrival/departure at VIP circulation points.

Gutters and Downspouts

Prefinished to match adjacent surface - place at corners, etc. and avoid "lonely" downspout whenever possible.

Railings

Match window/door material.

Mechanical Equipment

Locate away from circulation routes, especially pedestrian, and screen with landscaping, walls, etc.

SECTION B
ZONAL APPLICATION

Zone III - Maintenance/Storage/Supply

Motor Pools, Industrial Facilities, Logistics Support Center

Visual Building Design Factors

Size, Massing and Scale

Obviously quite large in general, but entries, office areas and other similar functions should be expressed separately in smaller, more varied masses. Reduction of scale in areas viewed close-up should be accomplished with differing masses, textures, materials, fenestration, etc.

Rhythm

Avoid too much repetition on very large buildings to avoid monotony. Break patterns into groups to reduce scale, i.e. IIIIXXIIIIXXIIII, not IIIIIIIIIIIIII.

Expressions of Hierarchy

Differentiate with materials, level or detail, color, etc. between utilitarian (equipment oriented) and administrative (people oriented) buildings.

Building Components

Major Building Elements

Walls

Concrete: with texture and relief provided by form impressions, expansion joints, etc. with light, warm tones.

Concrete Masonry Units: Various textures (avoid fluted and very large areas of smooth) Use light, warm tones with painted or textured accents or other colors as accents.

Fenestration

Use glazing elements to break up long, monotonous building facades..
Group fenestration elements together.

Doors

Use tubular metal frame with glazing at main entries, hollow metal for service doors and garage doors painted in bold identifying colors at drive-throughs and loading docks (for example, blue door with white, oversized number) (Fig F-9-s).

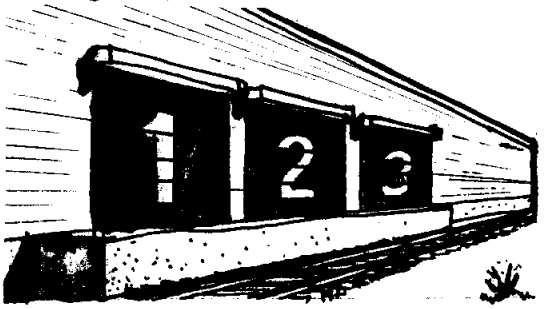


Fig F-9-s

Windows

Window style and size should reflect activities inside, i.e. large, high, fixed glazing with operable awning at bottom for shops and smaller operable units for offices.
Skylights and clerestories should be used extensively to provide natural light in central areas of large buildings.

Roof

Pitched roofs : 5/12.
Pitched roofs of asphalt shingles or, preferably, standing seam metal to indicate entrances and different functions (Fig F-9-t).

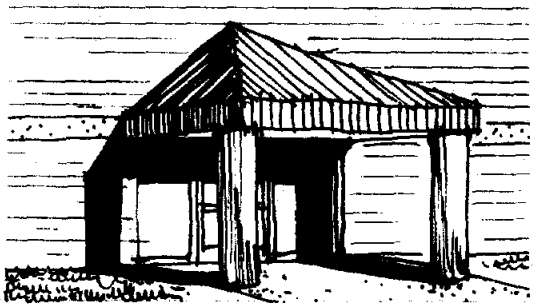


Fig F-9-t

Miscellaneous Elements

Covered Walkways
Might be provided between buildings which share an occupant and generate a large amount of cross-traffic.

Plazas and Courtyards
Should provide for employee breaks, lunches and informal meetings.

Mechanical Equipment
Should be screened and located away from entries and other traffic areas.

SECTION B
ZONAL APPLICATION

Zone IV - Troop Housing

Unaccompanied Enlisted Housing, Unit Administration/Storage, Battalion Headquarters

Visual Building Design Factors

Shape and Proportion

Use Golden Rectangle when possible. Arrange buildings in "L" or "U" configurations around courtyards to reinforce unit identity (Fig F-9-u).

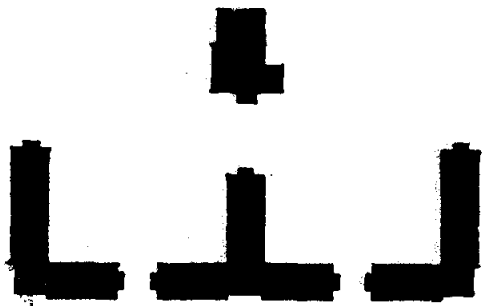


Fig F-9-u

Size, Massing and Scale

Articulate massing to emphasize entries. Scale elements should reinforce hierarchy.

Surface Articulation

Use surface articulation to emphasize hierarchy and to help identify individual quarters within barracks buildings.

Rhythm

Use similar rhythms of detailing, fenestration, etc. to tie together functionally dissimilar buildings in a group.

Expressions of Hierarchy

Overcome size vs. importance conflict of large barracks, medium unit administration/storage buildings, and small battalion headquarters by using roof pitches, materials, etc. to add prominence to battalion headquarters.

Style

New buildings or additions in Division Area should maintain "modern" style but with much more emphasis on Military Park Theme; ie, symmetry, hierarchy, detailing, etc. Buildings in new areas should be contemporary in character with elements of Georgian Colonial Revival when possible (proposed Jackson Avenue Troop Complex is a good example) (Fig F-9-v).

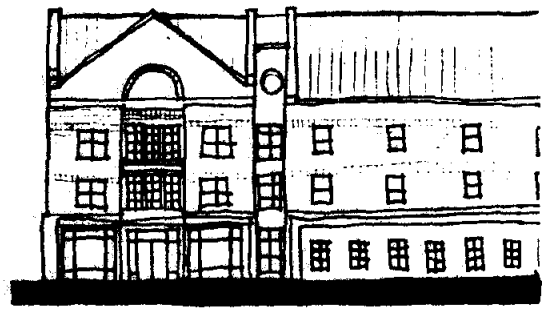


Fig F-9-v

Building Components

Major Building Elements

Base

Elevate brigade, group and battalion headquarters when possible.

Entrances

Identify entrances of all building types with recesses, pitched roofs, change in texture, material or color, etc.

Walls

Red brick, split-face concrete masonry units (grey), textured architectural concrete (not exposed aggregate) are all appropriate.

Fenestration

In general, use fenestration to articulate facades and provide scale. Use changes in fenestration patterns to identify changes in interior function. Avoid natural aluminum; use dark anodized (bronze or black) instead.

Doors

Storefronts are acceptable in all building types.

Windows

Do not use horizontal bands of glazing in barracks except at day rooms and other common areas; individual quarters should be reflected by window type and placement. Storefronts are acceptable in all building types.

Roof

Whenever possible, articulate entries (new and existing) with a sheltering roof form. Standard new roof to be hip (5/12 pitch) with gable accents. Appropriate materials are clay and concrete tile and standing-seam metal (Fig F-9-w).

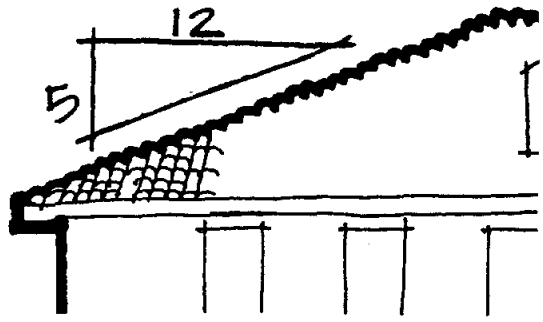


Fig F-9-w

Miscellaneous Elements

Plazas and Courtyards

Plazas should be provided as entry elements for battalion headquarters. Courtyards at barracks are extremely important as areas for recreation and relaxation, and to help reinforce unit identity.

Mechanical Equipment

Mechanical equipment, dumpsters, loading docks, etc. should be screened by landscaping and/or walls and should be located in unobtrusive locations whenever possible.

SECTION B
ZONAL APPLICATION

Zone V - Family Housing

Detached Housing, Attached Housing, Dependent Schools

Visual Building Design Factors

Shape and Proportion

Schools located in family housing areas should relate to that housing; ie, massing and form should reduce apparent size of school by breaking the overall building mass up into smaller units. Pitched roof elements, especially of entries should also be incorporated.
Materials should be the same as the predominant housing materials (except for wood siding).

Size, Massing and Scale

Small masses, whether individual homes or parts of a large whole should predominate. Use different floorplans and manipulate similar elements to create a feel for individual homes while retaining a consistency within each residential development.
Small, variable masses, articulated fenestration and other exterior detail should be combined to produce a residential scale (Fig F-9-x).

Rhythm

Use subtle, informal rhythms to tie together groups of houses or parts of large multi-family buildings.


Fig F-9-x

Expressions of Hierarchy

Use formality, size, level of detail and quality of materials to express the ranks of family housing dwellers.

Style

The style used should vary with the location; ie, new housing in the Garrison Area should be compatible with existing Greenwood and Broadmoor Housing (Georgian) with brick veneer and painted wood siding and trim (Fig F-9-y), while new housing in the natural areas


Fig F-9-y

near North Fort should have "Pacific Northwest" flavor (native stained wood and stone materials, heavy textures, etc) (Fig F-9-z).

Building Components

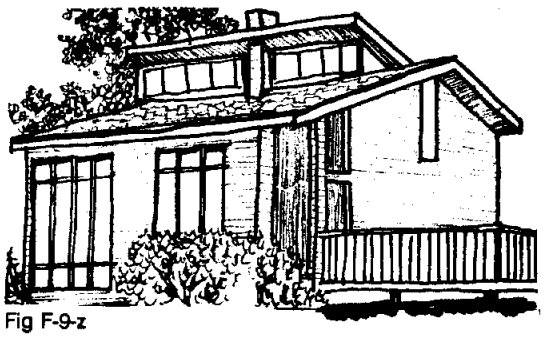


Fig F-9-z

Major Building Elements

Walls

Near Garrison Area: Red brick to match existing and painted wood trim.
Others: Native wood and stone (heavy texture).

Fenestration

Use traditional forms to relate to Garrison Area Housing where appropriate. More contemporary and informal forms should be used in other areas.

Doors

Painted solid core wood in "traditional" areas - stained wood in other areas.

Windows

Divided lite to match nearby existing.

Roof

Near Garrison Area: Clay tile or dark grey asphalt shingles.
Other: Asphalt shingles.
Roof pitch 3/12 min.

Dormers

Use as windows for second story bedrooms.

Miscellaneous Elements

Plazas and Courtyards

Private and semi-private spaces should be provided at multi-family buildings to provide outdoor living space and transitions from public to private space.

Gutters and Downspouts

Paint to match fascias and other adjacent materials.

Pediments

Can be used as door detailing in upper level officer housing near the Garrison Area (Fig F-9-aa).

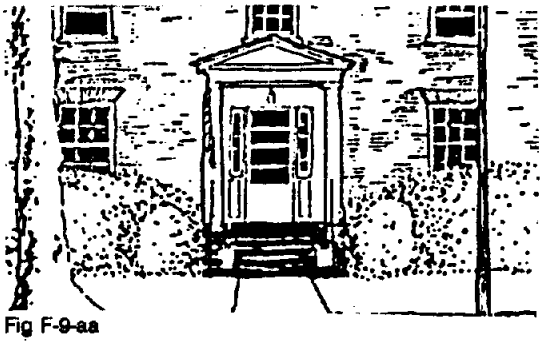


Fig F-9-aa

Mechanical Equipment

Should be located away from entries and screened from view.

SECTION B
ZONAL APPLICATION

Zone VI - Community Facilities

Retail Outlets, Indoor Recreation Facilities, Moral and Welfare Facilities, Theatres, Child Care Centers, Auto Craft Shops, Chapels and Religious Education, etc.

Visual Building Design Factors

Shape and Proportion

Use Golden Rectangle when possible as proportional system to help relate buildings to Garrison Area.

Size, Massing and Scale

Manipulate massing of large building to indicate entryways, etc. Scale of community facilities should be very "human" (Fig F-9-bb).

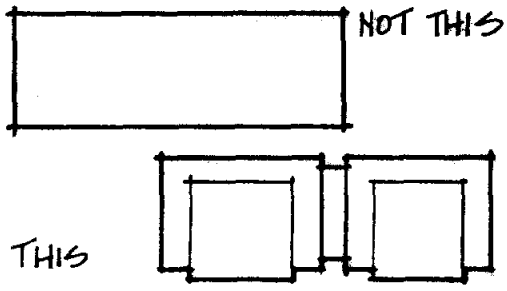


Fig F-9-bb

Surface Articulation

Very important in community facilities because of high concentration of people. Building facades need to add "life" to these areas with fenestration, overhangs, textures, etc.

Texture

Use "comfortable" textures at areas where people congregate to encourage lingering.

Rhythm

Rhythms should be lively and small-scaled.

Light & Shadow

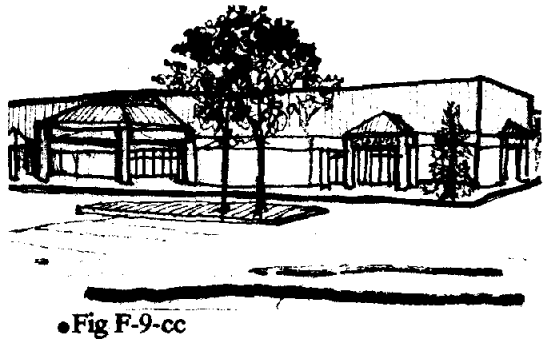
Use to attract attention to buildings, especially retail, from moderate distances.

Expressions of Hierarchy

Not a critical factor in Community Facilities.

Style

Community Facilities should relate to their immediate surroundings as well as have common elements. "Festival Marketplace" idiom is appropriate for retail, recreation and food service buildings (Fig F-9-cc)



•Fig F-9-cc

Building Components

Major Building Elements

Base

Since hierarchy is not a critical factor, raising a building on a base is not a priority.

Entrances

Very important element in facilities which serve large numbers of people, especially children and off-post users. Should include weather protection. Standing seam metal roofing and fascia are generally appropriate (Fig F-9-dd).

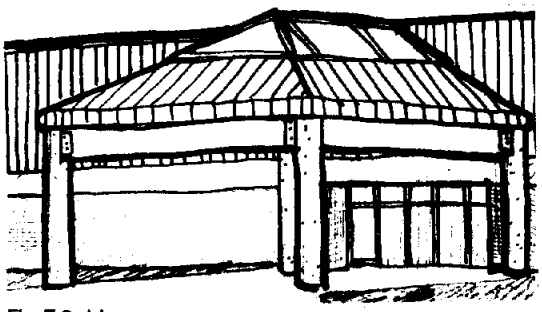


Fig F-9-dd

Walls

Avoid large expanses of un-articulated wall surface, especially at "people" areas. Use recesses, protrusions, structural expression, etc. to articulate walls. Masonry and concrete are most appropriate materials.

Fenestration

Allow views into and out of buildings whenever possible. Avoid reflective or darkly tinted glazing. Aluminum (preferable dark bronze or black) storefront construction is generally appropriate.

Roof

Introduce pitched elements whenever possible, especially in facilities for children and at entries, etc. Standing seam metal and concrete or clay tile are appropriate materials (Fig F-9-ee).

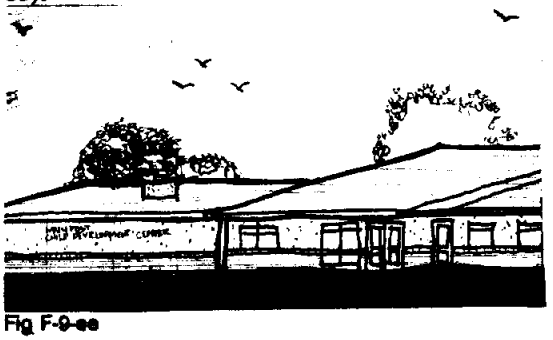


Fig F-9-ee

Miscellaneous Elements

Covered Walkways

Covered Walkways, when designed to be harmonious with or reflective of the surrounding architecture, are a good way to link community facilities visually and literally and to provide weather protection.

Porte-Cocheres

In Ft. Lewis' rainy climate, porte-cocheres should be considered for theatres, chapels and other buildings where large numbers of people arrive and leave at the same time.

Plazas and Courtyards

Pedestrian space such as plazas and courtyards are important to the success of Community Facilities and are critical in the Retail Core

Community Center. Outdoor or semi-enclosed spaces to rest, eat, socialize, play or exercise should be provided and must be linked by a defined pedestrian circulation system (Fig F-9-ff).

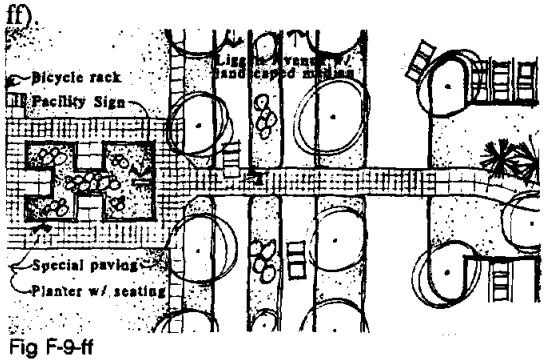


Fig F-9-ff

Mechanical Equipment

Mechanical equipment and other unsightly elements such as loading docks should be located away from pedestrian and parking areas and screened with landscaping or other means.

SECTION B
ZONAL APPLICATION

Zone VII - Medical Zone

Madigan Army Medical Center, Dental Clinics, Dispensaries

Visual Building Design Factors

Shape and Proportion

Proportion should be based on the Golden Rectangle.

Size, Massing and Scale

The scale of buildings in this zone (with the obvious exception of the new MAMC) should be human, but they should be massed to communicate their importance.

Surface Articulation

Since clinics and dispensaries tend to be relatively small buildings, articulation should primarily emphasize entries.

Texture

This element must be handled well because of the possible conflict that exists: smooth, clean looking textures are called for in a medical building but at the same time the building must not appear too machine or high-tech oriented. Textured material such as brick or split-face concrete masonry units should be used but detailing should be very precise and "clean" (Fig F-9-gg).

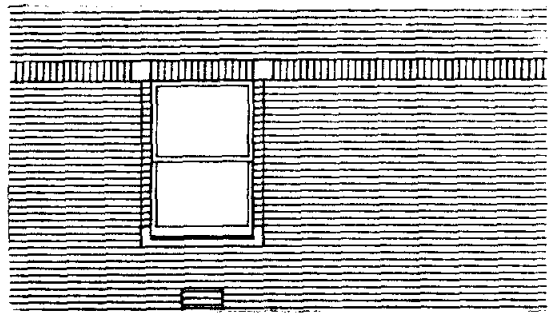


Fig F-9-gg

Rhythm

No unique requirements/guidance for this Zone.

Light & Shadow

No unique requirements/guidance for this Zone.

Expressions of Hierarchy

Clinics and dispensaries should generally reflect their status as an important support building, and should rank just below Battalion Headquarters on the hierarchal scale.

Style

Clinics and other small medical buildings should be styled to relate to their context but should emphasis the values of the Military Park Theme as demonstrated in the Garrison Area. Another possibility is to relate "satellite" building to the new Madigan Army Medical Center in detailing, color scheme, etc.

Building Components

Major Building Elements

Base

May be used to draw attention to the buildings and should contrast with rest of building.

Entrances

Should be "welcoming" and sheltering; pitched roofs (5/12) of metal or tile in color which contrasts with basic building are appropriate.

Walls

As stated in "Texture", walls should be of a medium texture material such as brick or split-face concrete masonry units with special attention to precise detailing.

Fenestration

Views out of waiting areas are desirable as is natural lighting through high wall windows in exam rooms, etc. to help prevent closed-in feelings in a possibly stressful situation.

Roof

Pitched roofs (5/12) of metal or clay or concrete tile in medium grey colors are generally appropriate on smaller buildings and at entries (Fig F-9-hh).

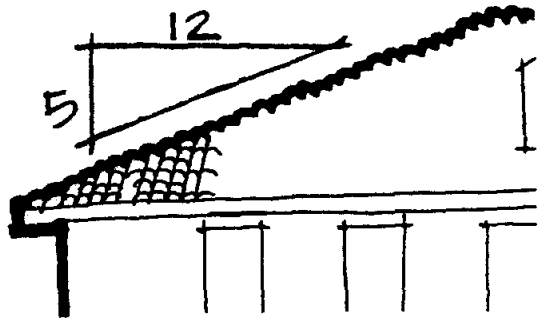


Fig F-9-hh

Miscellaneous Elements

Mechanical Equipment

Mechanical Equipment and dumpsters should be located away from entries and screened from view with landscaping or other means.

SECTION B
ZONAL APPLICATION

Zone VIII - Open Space

Natural Areas, Developed Areas of Inactive and Active Uses

Visual Building Design Factors

Shape and Proportion

Proportions should follow the Golden Rectangle or be similar to those at the Old Main Gate (Fig F-9-ii).

Fig F-9-ii

Size, Massing and Scale

Most buildings in this zone will be small and should maintain a human scale.

Texture

A rustic, frontier texture shall predominate.

Style

All buildings located in this zone should be constructed in the "cobblestone and timber" style of the original Main and Madigan Gates and the service station west of the Garrison Area (Fig F-9-jj). Exempted from this guideline are buildings located in parks or other open spaces which are integral parts of a cohesive, identifiable development. Such buildings should be designed to relate strongly to that development.

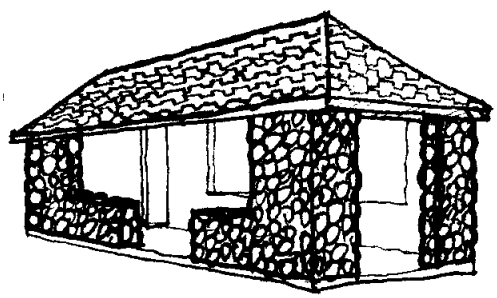


Fig F-9-jj

Building Components

Walls

Walls are to be of cobblestone or river rock similar to that found in the above mentioned buildings.

Roof

The roof will be the dominant element of most Zone VIII buildings. The standard should be a hip roof (5/12 pitch) with cedar shakes (preferably fire resistant).

Miscellaneous Elements

Plazas and Courtyards

Because of the outdoor, recreational use of most Zone VIII buildings, some outdoor paved space is probably called for at each building. These spaces should link the semi-enclosed buildings with the natural environment through paving materials and landscaping.